

Automatic Medicine and Health Admonisher Using Arduino

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Abstract: - We also wish to keep them safe and fit when it comes to our special ones. But what will happen if they get sick and wip out to take medication on time. This will bother us, right??? There are many patients in hospitals and it is difficult to alert each patient to take medication on time.. The that forms require human efforts to warn people to take medicines on time. The age does not imitate this, and for that we can use computers. The use of Smart Medicine Admonisher is very large and can be used by patients at home, hospital doctors and in many other areas. There can be many ways to warn, when it comes to warning Frequently patients forget to take the medicine at the appropriate time of medicines. And sometimes patient also forgets which medicine she/he have to take at required time. And it is difficult for Doctor or the staff to monitor patients around . To avoid this complication, we have made this medicine admonisher organization for patients using Arduino.

Key words— medical healthcare , medicine admonisher organization for patients using Arduino

I. INTRODUCTION

A significant number of patients are unable to follow their prescribed schedules for medication. This causes complications of the condition, reduced quality of life and even mortality. The automated medication admoniser is used to solve these issues. This organization, therefore, is very easy to run and upgrade and is used by a individual of any age association. Such program is often useful in hospitals where there are hundreds of patients and it is often difficult for workers to recall the medication and dosing. But this agency is also used in hospitals for some alerts. The problem such as maintaining the regularity of arbitrary dose is difficult to remember in busy schedules, recalling the name of the medication to be taken is very difficult and the patient's life will become more complicated due to above two factors. Such above complications occur for anyone because of prescription non-adherence. Therefore, in-home healthcare apps and technology are increasingly needed and desperately needed to provide patients with the electronic resources to enable self-management of medicines.

Many people often have to take proper medicines. A variety of diseases such as diabetes, blood pressure or heart failure are very similar nowadays and patients need to take medicines without interruption to keep these health issues in check. Most people don't take drugs punctually, and sometimes forget one or the other dose. Within this project, a medicine admonitor organization is designed to feed the user's medicines schedule and the organization warns them by sending SMS to their cell phone if they miss a dosage.

The customer has to grain the type of medicine, its dosage, After or Before Food admonisher, doctors name and time of the dosage in the organization.

When it comes to our adored ones, we always want to remain them healthy and fit. But what will happen if they get ill and clean forget to take medicine on time. We would be bothered, right? At hospitals, there are many patients and it is difficult to admonish every patient to take medicine on time. The historic ways require human efforts to admonish to take medicines on time. The digital generation doesn't follow that and we can use machines to do that. The utilization of Smart Medicine Admonisher is very extensive and can be used by patients at home, doctors at hospitals and at many alternative places. When it comes to admonishing, there can be many ways to admonish it:

1. Show it on a display
2. Send notification on email or Phone
3. Using the mobile apps
4. Buzzer alarm
5. Using Bluetooth and Wi-Fi
6. Get a call
7. alert of next medicine time while admonish current time

PREVIOUS WORK

Several different pill boxes were available in the market.

A. Traditional Medicine box It is the cheapest one, which contained seven boxes for seven contrasting days of a week, sell for around 200 rupees. However, user had to load

Working of Medicine And Health Admonisher Using Arduino

The Pill Admonisher Alarm uses 5V Supply to energize. As it first expels, a warm message shows up as "Warm to Circuit Digest." The LIQUID-CRYSTAL-DISPLAY screen is agreed to cycle in 3 screens. The 1st screen reveals "Stay Safe, Get Well Early" message. The second screen is a boost screen which tells to push select push button to select any one time-slot to admonish (once/twice/thrice in a day). The time slot is mercurial in program and can be configured accordingly. Barely we have fixed this into three durations of time.

We have time slots divided into 3 modules. Mode 1 selects to take medication at 8 am once a day, when the user pushes the first push button. When user clicks the 2nd push button, Mode 2 selects to take medication twice / day at 8 am and 8 pm. Mode 3 If user pushes 3rd push button, opt to take medication thrice / day at a different time.

We can also compute a feature to snooze the buzzer for 10-15 minutes. When user selects covert slots by pressing push buttons, the customer/user input is recorded and the time is taken from RTC. When time is coordinated with selected time slot then the buzzer appear buzzing. User can stop the buzzer by pressing STOP button. The same process continues for the next individual slot admonisher.

Implementation

Software Implementation

software implementation is the Arduino IDE established software habitat. A program written with the Arduino IDE is called a sketch. Sketches are saved on the development pc as document files with the file delay .ino. Arduino Software (IDE) freed sketches with the extension .pde. A Arduino C/C++ program dwell of only 2 functions: setup (): This function is called once when a sketch starts later power-up or reset. It is used to start the variables, input and output pin modes, and other libraries needed in the sketch. Loop (): After setup () function exits (ends), the loop () function is executed again and again in the main program. It oversight the board until the board is powered off or is reset. Programming Arduino UNO for Medicine Admonisher Writing software is really simple once you have hope of ways of admonishing taking the pills. Here it shows the board, buzzes a buzzer and announces it using LED. It also has the option of choosing three time slots during the day and beginning to send the patient the signals by buzzing the

buzzer when the time comes.. Then the whole organization will look like following:

- User gets help information on display
 - o User gets the facilities to selects time slots (once/day, twice/day, thrice/day)
 - o Then user can Print confirm the message on monitor displayed
 - o and Time keeping started
 - o Buzzer and LED starts when time matches with user selected the slot
 - o User stops by pressing a stop push button
 - o End

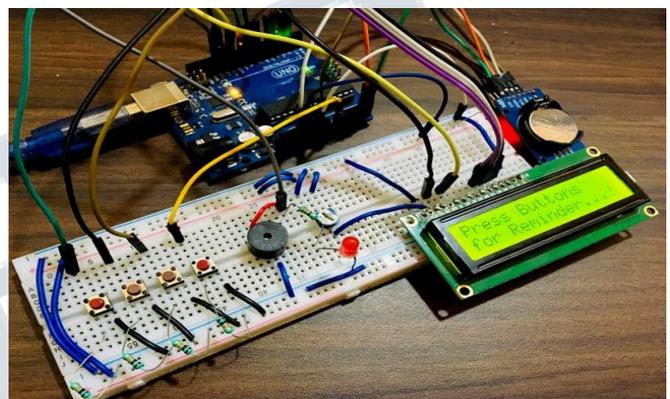


Fig2 working module

As we can see that we have used other peripherals like 16x2 Liquid-crystal-display Display, RTC DS3231, so we now have to include libraries for that. Library required are as following:

```
<LiquidCrystal.h>
<RTClib.h> (https://github.com/adafruit/RTClib)
<EEPROM.h>
<Wire.h>
```

The EEPROM library is used to keep the user input selection track while Arduino is off. So when customer control is on the Arduino it uses the EEPROM library to get the previous state of push buttons. Wire.h library is used since module RTC DS3231 interacts with I2C..

Do check if the RTC is properly wired or it is not impaired , since RTC will play an important role in time keeping of the full reminder organization.

```
if (! rtc.begin()) { // check if rtc is connected
  Serial.println("Couldn't find RTC");
  while (1);
}
if (rtc.lostPower()) {
  Serial.println("RTC lost power, lets set the time!");
}
```

The time modification can be achieved in 2 ways, either automatically using the compile time of the entity, or manually violating it. Note the lines below once we have set

the time, unless you want to change the RTC again.

```
rtc.adjust(DateTime(F(__DATE__), F(__TIME__)));
//rtc.adjust(DateTime(2019, 1, 10, 7, 59, 52));
```

HARDWARE DESCRIPTION

1. Arduino Uno (We will use alternative Arduino boards additionally, like Promini, Nano)

The Arduino Uno may be a microcontroller board supported the ATmega328 (datasheet). it's fourteen digital input/output pins (of that six may be used as PWM outputs), six analog inputs, a sixteen Mc oscillator, a USB affiliation, an influence jack, associate degree ICSP header, and a push. It contains everything required to support the microcontroller; merely connect it to a pc with a USB cable or power it with a AC-to-DC adapter or battery to urge started. The Uno differs from all preceding boards therein it doesn't use the FTDI USB-to-serial driver chip. Instead, it options the Atmega8U2 programmed as a USB-to-serial convertor.

2. RTC module-

The DS1307 serial period clock (RTC) may be a low power, full binary-coded decimal (BCD) clock/calendar and 56 bytes of Nevada SRAM. Address associate degree knowledge area unit transferred serially through an I2C, duplex bus. The clock/calendar provides seconds, minutes, hours, day, date, month, and year data. the top of the month date is mechanically adjusted for months with fewer than thirty one days, together with corrections for bissextile year



3. 16x2 digital display show

Liquid crystal show is employed to show the commands for that individual gesture created. digital display of 20*4

dimension is employed in this example. It suggests that twenty characters per line and there area unit four such line. digital display shows the present time and date that RTC sends to digital display module

4. Buzzer

It's easy, tone(buzzer, 1000) sends a 1KHz sound signal to pin nine, delay(1000) pause the program for one second and noTone(buzzer) stops the signal sound. The loop() routine can build this run once more and once more creating a brief beeping sound

5. Led(any color)

A light emitting diode may be a 2 lead semiconductor light. it's a tangency diode that emits lightweight once activated.

6) button:

Push button may be a switch for dominant some a part of the device. This area unit created of a tough material, normally plastic or a met



FUTURESCOPE

This implemented project deals with the conclusion of the technological and advanced resolution of a persuasive downside in hospital, such as watching the patient condition digitally and usual to unfold broad alertness, but technology may be used in emergency situations. This method can be moved, and organized in real time. Wearable sensors may be used for above health watching organization. differing types of wireless sensors may be wont to boost the extent of watching.

It implemented upgraded initiative to a telemedicine company for a wireless incident. Alternative physical parameters can also be in line with demand such as patient location, detection of sugar levels, etc. Remote health watching improves aspect of care, reduces attention pay and

empowers patients. This project upgraded for wireless house maker by calculate GPRS module in order that the placement of patient may be simple catch and each other thanks to upgrade project by wireless graphical record alert on the pc victimization Zig-bee technology.

The medicine estimate organization consists of temperature device, heart beat device, pressure device, A/D device, signal learning circuit, microcontroller, data cable, mobile, show[LCD][digital display|alphanumeric display] display. The temperature device is hired to sense the temperature worth of the patient's body. The detected output is given to A/D device wherever the analog signal is invigorate to digital signal. The digital output is given to micro-controller.

The prototype user interface was designed to imitate procedures taken in conventional medicine. However, the user interface still relies heavily on the LCD panel, which may be uncomfortable or hard to read for an old patient. One can replace the LCD screen with a more abstruse display such as simple LED lights. For example, when medicines are to be taken, the corresponding sections would glow a appropriate color. Audible dosage instructions would then be given using a text-to-speech basic.

The new data protocol for software and medication is prohibited from taking medicines regularly on a regular basis. For example, medicinal products can only be taken one, two, three, or four times a day. Most coordinated drugs are more complicated than this. The software and medicine data protocol can be reconstructed to allow for aperiodic dosage schedules. This will allow the organization to be compatible with more medicines

ADVANTAGE

Cost efficient: Our product cost is very cheap as compare to other product present in market.

User friendly: User can set time table of medicine by himself.

Highly reliable: Good in quality and performance; able to be trusted for patients & old age people. Provide comfort and health: Comfortable for old age people and add healthy life for patients who are regularly take medicines.

Long-Lasting: The product can be used for long period of time. Smart Medicine Reminder Box

Easy to use and manufacture: It is very easy to use and manufacture.

Accurate result: buzzer will ring at proper time which is set by user previously.

Easy to maintain: low Maintenance. It is one time asset afterwards it can be used continuously.

CONCLUSION

The objective of our undertaking is to give sound and strain free life to those clients who are taking consistently pills and to give this item at moderate expense moreover. Our task is additionally reusable by trading those other medication box that has just cautioning framework and are non-usable or excessively expensive contrast with our item.

The framework that came about because of this exploration was planned by past work and research done on in-home medicinal services, RFID in social insurance, and in-home drug organization gadgets. The tale highlights of the framework, for example, the equipment interface intended for the scale, the segment divider component used to situate medication holders, and the product conventions used to interface the framework with the drug store 89 give a huge commitment to the exploration that has just been done here. The accessibility of the distributed model equipment and programming parts will likewise significant to scientists if a comparable or resulting framework is created. One noteworthy issue was acknowledged during the assessment of the model. The scale stage, the equipment segment that interfaces with the scale and RFID peruser, couldn't distinguish medication holders when they were set in the district of the stage restricting the peruser reception apparatus. On account of how the peruser is deliberately situated, read blunders don't happen when the compartments are situated on the stage by the area divider. In any case, if the client puts a medication compartment on the stage, almost certainly, it will be put in the confined district.

In part 6, this issue is additionally portrayed, and an answer is introduced. The adequacy of the framework depends on a few suspicions. To start with, the gadget's UI relies upon the capacity of the client to peruse message on the LCD screen, and viably expel and supplant the little medication holders in the plate stage areas. Second, the gadget's remote observing and organization capacities rely upon a continuous stockpile of intensity, an open association with the Internet, and the informing framework used to convey ready messages, explicitly email and SMS. Third, the model is intended to demonstrate the ideas in this exploration, and ought not be promptly placed into creation. Lastly, the structure of the gadget equipment infers certain conditions, explicitly an Ethernet-based Internet association, and medication compartments that are good with the gadget's medication plate as far as size and weight.

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